

SUPPORT FOR THE AMENDMENTS

Applicants have amended the title to correspond to that on the Declaration filed on October 5, 2001. Support for the new title can be found in the title, as originally filed. No new matter has been added.

REMARKS/ARGUMENTS

At the outset, Applicants wish to thank Examiner Paden for indicating that Claims 9, 10, 20-28, 33, and 39-47 are only objected to as being dependent on a rejected base claim and would be allowable if rewritten in independent form. Applicants submit that in view of the following arguments, all of the present claims are allowable.

The rejection of Claims 4-6 under 35 U.S.C. §103(a) in view of U.S. Patent No. 5,952,230 (Kim et al) in view of U.S. Patent No. 4,556,573 (Bartesch et al) and U.S. Patent No. 4,495,207 (Christianson et al); the rejection of Claims 7, 10, and 29-31 under 35 U.S.C. §103(a) in view of Kim et al, Bartesch et al, and Christianson et al, and further in view of "Properties Peculiar to Lipids in Soybeans of Beeson Species" (Tokue et al); and the rejection of Claims 7, 8, 13-19, 31, 32, and 34-37 under 35 U.S.C. §103(a) in view of Kim et al, Bartesch et al, Christianson et al, and Tokue et al, and further in view of "Sterol Compositions in Lipids of Cotyledon, Embryo, and Seed Coat from Soybean, Cotton, and Sunflower Seed (Kajimoto et al) are respectfully traversed.

Present Claims 4-6, 8, 15-17, 19, 29, 30, and 32 relate to oils which are prepared from a soybean material which has a germ content of 15% to 80% by weight. Claim 13 relates to a food which contains such an oil. Claims 7, 18, and 31 relate to oils which are prepared from a soybean material without any addition of sterol and which have a total sterol content of 0.8% by weight or more. The cited references contain no suggestion of the presently claimed oils, and provide no expectation of success for achieving the presently claimed oils.

Moreover, these references do suggest the advantages afforded by the presently claimed oils. Accordingly, these references cannot affect the patentability of the present claims.

Kim et al discloses certain methods for separating soybean embryos from soybeans. However, this reference is completely silent in regard to obtaining any oil from any soybean fraction

Bartesch et al discloses a method for the recovery of soybean oil of soybean meal from soybeans. The purpose of Bartesch et al is to provide a method for processing soybeans in a more economical fashion with a savings in energy (see, e.g., column 2, lines 13-23). In the method of Bartesch et al, the seed portions or kernels may be separated from the hulls before being crushed and flaked (see, ABSTRACT).

Bartesch et al also discloses that oil may be recovered from soybeans. However, this reference does not disclose or suggest any further separation or fractionation of the seed portions or kernels. In other words, there is no disclosure of preparing a soybean oil from a material which has a germ content of at least 15% by weight in Bartesch et al.

In this regard, it should be recalled that soybeans contain a major part of cotyledon (ca. 90%), a very minor part of germ (ca. 2 %), and another minor part of shell or hull (ca. 8%), as described on page 1 of the present specification. Bartesch et al is concerned with only removing the hull or shell part from the soybean. Thus, after application of the method of Bartesch et al, the resulting seed portion of soybeans consists mainly of a major part of cotyledon (ca. 98% of the seed portion) and a very minor part of germ (ca. 2.2 % of the seed portion). Since the method of Bartesch et al is concerned with only removing the hull or shell part from the soybean, it is very clear that any oil extracted in Bartesch et al is actually extracted from the whole part of the soybean seed portions or kernels that contain ***both cotyledon and germ parts without being separated from each other and there is nothing in***

this reference which would even remotely suggest obtaining an oil from a soybean material which ha a germ content of at least 15% by weight.

Christianson et al discloses a method for preparing high-protein, food-grade **corn** germ product by defatting dry-milled **corn** germ fractions with carbon dioxide under supercritical conditions. Thus, this reference is completely unconcerned with soybeans or oil obtained from soybeans.

Moreover, the purpose of Christianson et al is to obtain a food-grade product such as a corn germ flour, ***not to extract an edible oil from the corn seed germ***. The oil is just a by-product in the method, and there are actually no data concerning the composition of or the ingredients in the oil.

Thus, none of these three cited references provide any suggestion or teaching of obtaining oil from a ***germ-enriched soybean material***, which is a key feature of the present invention.

As already mentioned above, the germ content in the soybean seed portion is only about 2.2 %, as compared to that in corn or rice seeds (about 5 %). Furthermore, the embryo (germ) of soybeans contains a much lower crude fat content (about 20 %, see Table 1 of Tokue et al), as compared to that contained in corn or rice germs (about 50 %). It is therefore well known in the art that it is very easy to separate the germ part from the other parts of rice and corn seed portions, and each separated part of the rice and corn seed portions has been conventionally used in the art for producing starch, for example.

In contrast, however, due to the low content of germ in soybeans and the low fat content of soybean germ, as compared to corn and rice, those skilled in the art have not previously considered the possibility of extracting the oil from a germ-enriched soybean material or thought that such a process would be advantageous or feasible from economical

and practical points of view. This position is supported by the fact that both Bartesch et al and Christianson et al were issued almost 20 years ago.

Tokue et al and Kajimoto et al are concerned with certain properties and compositions of lipids extracted from the parts of soybean. However, these reports are based on experimental data obtained only at the laboratory level, and any oil obtained and analyzed in these references cannot be edible. For example, the method of extraction using a mixed solution of chloroform:methanol described on page 4 of Tokue et al can not be used for the production of an edible oil such as that described in the present specification.

Moreover, the differences between the product of Tokue et al and that of the present invention are reflected, for example, in the difference of the fat/oil content of 20.3 % reported in Table 1 of Tokue et al and 12-15 % for the Germ Part in Experiments I and II of Table 4 on page 20, of the present specification.

In any event, the present soybean oil provides certain advantages which could not have been expected from the cited references. In support of this assertion, Applicants direct the Examiner's attention to Examples 1 and 2 given on pages 10-25, of the specification.

Specifically, the results presented in Example 1 (Animal Test No.1, Figs. 3 & 4) clearly show that the cholesterol lowering effect of the present soybean oil is much greater than that of conventional soybean oil.

Moreover, the results given in Example 2 (Experiments I & II, Table 7) clearly show that the cholesterol levels in the serum and liver are more significantly decreased by the present soybean oil than by conventional soybean oil.

Additional, unexpected advantages of the oil prepared from germ-enriched soybean material over corn and rice oil are clearly demonstrated in Example 3, especially in Table 9 on page 27 of the present specification.

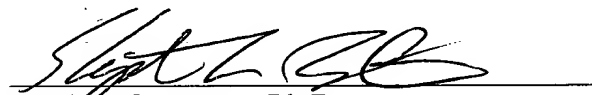
In summary, there is no suggestion or motivation either in the references themselves or in the knowledge among those skilled in the art to modify the references or to combine them in such a way to utilize a germ-enriched soybean material as the starting material for the production of an edible oil. Instead, such an oil is the invention of the present inventors. In addition, the cited references, even in combination, would not have instilled a reasonable expectation of success in the skilled artisan for achieving the presently claimed oils.

For all of these reasons, the cited references cannot make the present claims obvious, and the rejection should be withdrawn.

Applicants submit that the present application is now in condition for allowance, and early notification of such action is earnestly solicited.

Respectfully submitted,

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